

Attorney Docket 55434US002
Serial No. 09/591,584

B3 SubC3
Cont Cont (g) ~~a third ambient-temperature-attachable pressure-sensitive adhesive layer;~~
wherein said pressure-sensitive adhesive layers are comprised of pressure sensitive adhesive
having a shear storage modulus measured at 22°C in the range of about 0.20 MPa to 0.50 MPa

Remarks

In the Office Action, claims 1, 3, 4, 7, 8, 13 and 17 were rejected under § 102(b) as being anticipated by U.S. Patent No. 4,797,317 to Oliver et al.; claim 2 was rejected under § 103 as being unpatentable in view of the '317 patent; claim 6 was rejected under § 103 as being unpatentable over the '317 patent in view of U.S. Patent No. 5,677,050 to Bilkadi et al.; claims 9-11 and 18-23 were rejected under § 103 as being unpatentable over the '317 patent in view of U.S. Patent No. 4,112,171 to Motter et al. and further in view of U.S. Patent No. 6,013,722 to Yang et al.; claims 1-3, 5-8 and 12 were rejected under § 103 as being unpatentable over U.S. Patent No. 4,028,475 to Willdorf in view of the '171 patent; claim 6 was further rejected under § 103 as being unpatentable over the '475 patent in view of the '171 patent and the '050 patent; and claims 14-16 and 24-27 were rejected under § 103 as being unpatentable over the '317 patent in view of the '722 patent.

With this Amendment, claims 1 and 12 have been amended to delete the limitation "wherein once attached to window glass provides a glazing element which passes the following ANSI Z-26 test: 5.04 - Two Hour Boiling Water," which limitation was added to these claims in the Amendment dated February 21, 2002. Claim 7 has been amended to add the limitations "tempered or laminated" and "5.04 - Two Hour Boiling Water," which limitations were deleted from this claim in the February 21st Amendment. Hence, claims 1, 7 and 12, as amended above, are now in the same form as when they were originally filed. Since these amendments merely place claims 1, 7 and 12 in the same form as when they were originally filed, it is respectfully submitted that this response does not raise new issues. Hence, entry of this paper is respectfully requested.

Independent claims 1, 9 and 24 recite in pertinent part:

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(d) a sufficient number of layers of in situ optically clear pressure sensitive adhesive layers to directly bond said laminae together with the hard coating exposed

Claim 12 recites:

An optically clear laminate comprising the following components adhered together in the following order:

- (a) a scratch-resistant hard coat comprised of cured ceramer;
- (b) a first biaxially oriented polyester film having a thickness of not more than 5 mils (0.13 mm);
- (c) a first pressure sensitive adhesive layer;
- (d) a second biaxially oriented polyester film having a thickness of not more than 5 mils (0.13 mm);
- (e) a second pressure sensitive adhesive layer;
- (f) a third biaxially oriented polyester film having a thickness of not more than 5 mils (0.13 mm); and
- (g) a third ambient-temperature-attachable pressure sensitive adhesive layer; wherein said pressure sensitive adhesive layers are comprised of pressure sensitive adhesive having a shear storage modulus measured at 22°C in the range of about 0.20 MPa to 0.50 MPa.

Hence, in each of independent claims 1, 9, 12 and 24, the laminating adhesive for directly bonding the laminae or polyester film layers together comprises a "pressure sensitive adhesive." A pressure sensitive adhesive is a preferred "laminating adhesive" because it deforms or gives under impact so as to permit the laminae or film layers to move relative to one another without tearing. Other adhesives, such as heat activated adhesives, are typically less likely to deform under impact resulting in the laminae or film layers tearing.

The Oliver et al. patent teaches in column 5, lines 7-10: the "laminating adhesives presently preferred for joining layers 12 and 18 are polyester resins made by DuPont under the trademark Eplam and by Morton Chemical Co., whose stock identification number of [sic: is] 76R-36." The applicant was able to determine that the Morton adhesive was not a pressure sensitive adhesive but, rather, a heat activated adhesive requiring relatively high temperatures to effect a bond and further having a shear modulus of approximately 50 MPa. The DuPont Eplam adhesive is no longer commercially available, and the applicant was unable to find any information regarding the properties of the DuPont adhesive. However, it is submitted that

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Oliver et al. do not explicitly teach that the DuPont adhesive comprises a pressure sensitive adhesive. It is noted that Oliver et al. do teach that the mounting adhesive 20, used to mount the Oliver et al. construction onto a glass surface, may comprise a pressure sensitive adhesive, see column 6, line 45. It is submitted that if Oliver et al. had intended for their laminating adhesive to be a pressure sensitive adhesive, they would have similarly indicated this in their patent.

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The Willdorf patent teaches providing copolyester bonding strata between self-supporting polyester strata as well as an outer pressure sensitive adhesive stratum. Nowhere does Willdorf disclose, teach or suggest that the copolyester bonding strata comprise pressure sensitive adhesive layers. In point of fact, because Willdorf teaches that the outer adhesive stratum comprises a pressure sensitive adhesive layer while not indicating that the inner or copolyester bonding strata are also pressure sensitive adhesive strata, it is submitted that, by implication, the inner bonding strata do not comprise pressure sensitive adhesive strata.

drop

None of Yang et al., Motter et al. or Bilkadi et al. disclose, teach or suggest providing one or more pressure sensitive adhesive layers for bonding together laminae or film layers.

In view of the above, it is submitted that Oliver et al., Willdorf, Yang et al., Motter et al. and Bilkadi et al., whether taken singly or in combination, do not disclose, teach or suggest the subject matter set out in claims 1-27.

It is submitted that claims 8 and 11 recite additional limitations which further distinguish those claims patentably from the applied prior art. Nowhere does the prior art disclose, teach or suggest providing pressure sensitive adhesive layers having a shear storage modulus measured at 22°C in the range of about 0.20 Mpa to about 0.50 Mpa. Accordingly, it is submitted that claims 8 and 11 define patentable invention over the prior art.

It is also submitted that there are other limitations recited in the claims, in addition to those discussed above, which further distinguish the claimed invention patentably from the cited art and the other art of record. These additional distinguishing limitations will not be discussed because there is no need to do so at this time. Accordingly, it is submitted that the §102 and §103 rejections should be withdrawn and the case allowed.

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Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

In view of the above remarks, applicant submits that claims 1-27 define patentably over the prior art. Early notification of allowable subject matter is respectfully requested.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

Claims 1, 7 and 12 have been amended as follows:

1. (Twice-Amended) An optically clear laminate suited for attachment to window glass to provide a glazing element which has reduced spall and lacerative consequences on impact fracture of the window glass; said laminate comprising:

(a) a first lamina comprised of optically clear flexible nonadhesive polymeric material having a first major surface and an opposite second major surface;

(b) a scratch-resistant hard coating over said first major surface to provide an exposed surface to the laminate;

(c) at least one additional lamina comprised of optically clear flexible nonadhesive polymeric material;

(d) a sufficient number of layers of in situ optically clear pressure sensitive adhesive layers to directly bond said laminae together with the hard coating exposed; and

(e) a layer of in situ optically clear ambient temperature attachable pressure sensitive adhesive to bond said laminate to window glass; and

wherein once attached to window glass provides a glazing element which passes the following ANSI Z-26 test: 5.04 – Two Hour Boiling Water].

7. (Twice-Amended) The laminate of claim 1 wherein once attached to tempered or laminated window glass provides a glazing element which [also] passes at least one of the following ANSI Z-26 tests:

5.04 – Two Hour Boiling Water;

5.13 – Thirty Foot Ball (9.14 m) Drop;

5.17 – Resistance to Abrasion;

5.19 – Chemical Resistance; and

5.23 – Flammability.

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12. (Twice-Amended) An optically clear laminate comprising the following components adhered together in the following order:

- (a) a scratch-resistant hard coat comprised of cured ceramer;
- (b) a first biaxially oriented polyester film having a thickness of not more than 5 mils (0.13 mm);
- (c) a first pressure sensitive adhesive layer;
- (d) a second biaxially oriented polyester film having a thickness of not more than 5 mils (0.13 mm);
- (e) a second pressure sensitive adhesive layer;
- (f) a third biaxially oriented polyester film having a thickness of not more than 5 mils (0.13 mm); and

(g) a third ambient-temperature-attachable pressure sensitive adhesive layer;
wherein said pressure sensitive adhesive layers are comprised of pressure sensitive adhesive having a shear storage modulus measured at 22°C in the range of about 0.20 MPa to 0.50 MPa[; and

wherein once attached to window glass provides a glazing element which passes the following ANSI Z-26 test: 5.04 – Two Hour Boiling Water].